DOCUMENT RESUME

ED 150 718 EA 010 350

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TITLE Economic Impact of Impasse Procedures in Teacher Negotiations: The Experience Under New York's Taylor Law, 1968-72.
PUB DATE Feb 78
NOTE 45p.; Paper presented at the Annual Meeting of the American Educational Research Association (Toronto, Ontario, March 27-31, 1978)

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS *Collective Bargaining; Elementary Secondary Education; Industrial Relations; Labor Legislation; *Negotiation Impasses; *State Legislation; *Statistical Analysis; Tables (Data); Teachers; *Teacher Salaries
IDENTIFIERS *New York; *Taylor Law

ABSTRACT

This study investigated whether the use of the impasse procedures established by New York's Taylor Law affected the level of teacher salaries in New York public school districts between 1968 and 1972. Data for the study were gathered from all 693 New York public school districts (except New York City) that were involved in collective bargaining between 1968 and 1972. Cross-section regression equations were used to relate teacher salaries to a number of independent variables, including a set representing the various impasse steps. The results indicate that the impasse steps did influence the level of teacher salary settlements, but that this influence varied by location and over time. The authors conclude that, over the first five years of the Taylor Law, each side in bargaining adjusted its strategies to accommodate the impasse procedures. They further conclude that the gains potentially available to both sides led to overreliance on the impasse procedures. (Author/JG)

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ECONOMIC IMPACT OF IMPASSE PROCEDURES IN TEACHER NEGOTIATIONS:

The Experience Under New York's Taylor Law, 1968-72

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February 1978

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Introduction

This paper tests the impact of New York State's Taylor Law impasse procedures on public school teachers' salaries. Recent research has focused on the relative economic effect of public sector unions (much of the emphasis has been on teachers).[1] In addition, there have been a number of published pieces concentrating on various aspects of the bargaining process. For example, some researchers are interested in the efficacy of compulsory arbitration and its impact on antecedent impasse steps.[2] Others have generated hypotheses relating to the addictive effect of mandatory impasse procedures.[3] This paper specifies a model that incorporates impasse variables along with more traditional determinants of salary in order to answer some questions about the impact of impasse steps on teacher salary settlements. Ideally, an intervention process is designed not to have an impact on salaries, but to help the parties mature and eventually eschew the use of neutrals. However, if the use of impasse steps affects salary settlements in a significant way, incentives are created for the parties to use those steps, rather than settle without outside intervention.

A Brief Look at the Taylor Law

The Taylor Law, which took effect on September 1, 1967, covers all public employees in New York State. Section 200 (c) of the statute requires public employers, e.g., school boards, to negotiate with and enter into written agreements with organizations representing public employees that have been certified or recognized. The avowed purpose of the law is "to promote harmonious and cooperative relationships between government and its employees and to protect the

public by assuring, at all times, the orderly and uninterrupted operations and functions of government."[4] To help achieve this purpose, the law establishes impasse procedures for the resolution of contract disputes. Either party to a negotiation may declare to the Public Employment Relations Board (PERB) that an impasse exists. If PERB determines that an impasse does exist, it appoints a mediator "to effect a voluntary resolution of the dispute."[5] If the parties fail to reach an agreement through mediation, PERB will appoint a factfinding board (which in practice has normally consisted of one person) to inquire into the causes of the dispute and make recommendations. Either party has the option of accepting or rejecting the factfinding report. If the report is rejected, PERB may make recommendations or take any other step to resolve the dispute. This step in the procedure is generally referred to as "superconciliation." Usually it involves the assignment to the dispute of still another mediator, often one of PERB's permanent staff of mediators and conciliators or a member of PERB's ad hoc panel of mediators who is considered particularly well suited for the assignment. In addition, between 1970 and 1974, the law also provided that if settlement had not been reached at earlier steps, the school board could hold a "legislative hearing" and resolve the dispute. This simple description might give the appearance that impasse procedures under the Taylor Law are simple. However, they are not. The possible impasse combinations available to the parties are diverse, as is shown in the flow chart in Appendix B.

Theoretical Framework

The next step is to develop a theoretical framework to explain

the bargaining process in an environment characterized by mandated impasse steps. Assume that at some point in the bargaining process there is some salary, S, put on the table by the representatives of the local school board. The union then can: 1) accept the salary, S, on the table, or 2) continue to bargain for a salary greater than S.[6] However, continued bargaining poses some risk. Will the effort produce a salary greater than S or will this perseverence lead to a deterioration in the board's offer and possibly lead to a strike? Ideally, the union assesses the risk(s) and only continues to bargain if the expected gains are greater than the expected costs. Thus, the union at each choice point in the bargaining process has to opt for a certain salary, S, and a risk alternative which could result in a salary outcome greater or less than S. A union's willingness to accept the salary offer on the table may depend on: 1) the distance S is from the union's target salary; 2) the length of time it has taken the union to generate the board's last offer and 3) the distance (or difference) that S is from the status quo. It is hard to say which of the two statistics (target-S or status quo-S) is more important, although it is our impression that the difference between the offer on the table and status quo wage is the more critical variable in the eyes of the union. A union might initially be concerned about the difference between its target and the status quo, but as bargaining moves into the later stages, first positions are forgotten and the union focuses on the offer on the table and how this compares to the status quo. Also, it is hard to discern the union's <u>true</u> target-S from its initial demand, since initial positions normally contain an element of bluff. The same reasoning could be applied to the employer.

This decision-making framework fits neatly into the avoidance-avoidance model.[7] At each step in the negotiating process, a union's willingness to accept the board's current offer, S, is considered in light of its desire to avoid pressing for an untenable target. At the same time, the board's offer must be such that it decreases the union's desire to avoid settling on the board's terms, namely at S. The sequential and discrete Taylor Law impasse steps of mediation, factfinding, legislative hearing, and superconciliation allow us to test whether, on average, further use of the procedures in a given set of negotiations is economically justified for either party. Our theory leads us to suggest certain propositions concerning either party's ability to gain a more favorable settlement by rejecting a current proposal and moving to the next impasse step:

(1) The union will reject the board's current offer, S, and move to the next impasse step if (a) it perceives the board's offer to be too close to the status quo-S and too far from the target-S and (b) it considers the risk of moving forward to be zero or negligible, i.e. it calculates that the board will increase its offer at the next step and not choose a "conflict alternative", such as reducing its offer to the status-quo S.

(2) The board will increase its current offer at the next step if (a) its current offer is not equal or close to its "resistance point", i.e. the maximum amount it is willing to offer rather than choose a conflict alternative[8] or (b) the board's current offer is equal to its resistance point,

but moving to the next impasse step causes the board to revise its resistance point upward. This might happen if the board perceived that the union was willing to impose costs on the board at the next step (e.g. in the form of a strike) if the board is unwilling to increase its offer, and the board, weighing the costs of not making a higher offer against the costs of increasing its offer, chooses the latter option.

If these conditions hold the union will gain by moving forward in the impasse procedures. If they do not hold, the board may gain or the conditions may offset each other so that moving to the next impasse step has no impact on the eventual salary settlement. In practice we can observe the status quo-S, but not the resistance and target points nor the risk factors associated with moving forward in the process. Thus, we will make inferences about the dynamics of the bargaining process under mandated impasse procedures on the basis of empirical findings on the relation between the procedures and salary settlements.

Description of the Data

The data for this study were collected from all New York public school districts (except New York City) involved in negotiations between 1968 and 1972. The New York State Education Department listed 845 school districts in the state in 1968, but not all were operating and those that were may not have been involved in negotiations. For example, over time the number of multiple-year contracts grew and thus reduced the actual number of districts that negotiated in any

given year. Also, about 30 districts never did become organized over the first five years of the Taylor Law and hence did not negotiate contracts. Thus, a total of five years' data for 693 school districts was available for this study. These districts (1) were actually operating over the entire period, 1968-72; (2) negotiated at least one contract with a teachers' group, and (3) reported to PERB.

The data are classified into "upstate" and "downstate" categories for reasons which will be explained later. Downstate data include the counties of Nassau, Suffolk, Westchester, and Rockland, while upstate data include the rest of New York State. Tables 1 and 2 show the cumulative frequencies of districts settling without impasse and at the various impasse steps for the upstate and downstate regions, respectively. The cumulative frequencies in Tables 1 and 2 point up that, over time, teacher disputes were solved at progressively later steps in the impasse procedures. For example, by 1972 about 23 (upstate) and 45 (downstate) percent of all settlements were reached beyond mediation, compared to about 7 and 22 percent, respectively, in 1968.

These tables make it reasonably clear that the parties have come to rely increasingly upon the statutory impasse procedures. In order to determine what effect the bargaining process (the use of the impasse procedures) has on bargaining outcomes (teacher salaries), the model used in this analysis is presented next.

Model

The basic model used in this study is a regression model with salary as the dependent variable. Cross-section regression analyses

TABLE 1

Cumulative Frequency by Step
Upstate

	1968 %	1969 %	1970 %	1971 %	1972 %
No Impasse	81.7	63.6	64.0	50.8	47.3
Mediation	93.3	74.4	76.9	75.4	76.9
Factfinding	100.0	97.2	93.8	90.0	90.1
Leg. Hearing-Superconciliation	--	100.0	98.7	98.9	99.3
Strike	--	--	100.0	100.0	100.0

TABLE 2

Cumulative Frequency by Step
Downstate

	1968 %	1969 %	1970 %	1971 %	1972 %
No Impasse	54.9	44.3	60.3	39.7	39.5
Mediation	78.1	56.3	76.1	65.2	54.3
Factfinding	100.0	89.8	93.9	81.5	85.2
Leg. Hearing-Superconciliation	--	99.4	99.3	96.4	96.3
Strike	--	100.0	100.0	100.0	100.0

will be performed for each of the five years 1968-72 for both upstate and downstate regions. The reason for splitting the state into two categories is that downstate school districts appear to have about 15% higher salaries than upstate school districts. Since this study will attempt to explain salary variation as a result of impasse steps there should be some comparability of salaries initially to be able to justify a conclusion that it is indeed the impasse procedures that affect salaries, and not some other systematic relationship. It also can be argued that New York City and its immediate surroundings have characteristics different from the rest of the state. Therefore, the analysis will be performed separately for both upstate and downstate regions.

Teachers in New York State are normally paid according to a negotiated salary schedule based on two factors: years of experience and college credit hours earned beyond the bachelor's degree. Data were gathered for three salary points in the schedule for each New York district: (1) the salary paid to first-year teachers with only a bachelor's degree (BASE or B.S.); (2) the salary paid to a teacher with seven years of experience and thirty hours of earned credit beyond the bachelor's degree (B.S. + 30, 7th step); and (3) the salary paid to a teacher with eleven years of experience and sixty hours of earned credit beyond the bachelor's degree (B.S. + 60, 11th step). These three salary points give a representative profile of the salary schedule in each district and will be used as the dependent variables in the analysis.

Independent Variables

There are twelve independent variables included in each equation.

We will define each variable and briefly justify its use. The first eight of these variables have been used by other researchers.

1. Ability to Pay: It is often argued that what determines an employee's salary, especially a public employee's, is the financial status of the emplcyer, particularly the employer's ability to pay. A measure of a school district's ability to pay, "true value per pupil", is an estimate of the market value of the property per pupil in a district. Since school revenues are based primarily on local property taxes, the value of a district's property wealth behind each pupil is considered a good index of ability to pay. Thus, it is expected that the higher a district's ability to pay, the higher should be the teachers' salaries in that district.

2. Willingness to Pay: Another determinant of teachers' salaries used in the literature is how "willing" the district is to pay salaries teachers desire. "An idea of the effort a community has made to supply public services comes from comparing its ability to pay, measured by its taxable resources, and the amount of tax revenues which actually have been collected and spent on services."[9] The ratio of current expenditures to true value is a measure of a district's willingness to pay, where current expenditures are defined as instructional costs. Again, it is expected that the higher a district's willingness to pay, the higher the teachers' salaries in that district should be.

3. Student-Teacher Ratio: Another determinant of the salary a teacher receives is probably the quality of his teaching position. Since teaching involves different duties in different districts, the quality of teaching positions will vary across districts; the student-teacher ratio, a measure of average class size in the district

will be used to measure quality differences in schools. If high quality schools pay high salaries, the student-teacher ratio and salaries should be inversely related. On the other hand, there may be a direct relationship if teachers and school boards believe that larger classes require additional compensation. There is also the possibility that salaries and student-teacher ratios may be determined simultaneously through bargaining.[10] For this analysis, however, the student-teacher ratio will be used solely as an independent variable.

4. Total Enrollment: We hypothesize that districts with larger enrollments will pay higher salaries.[11] First, larger districts may require teachers with higher skills because they have more specialized or enriched programs and have more exceptional students. Second, larger districts are more likely to be in metropolitan areas where there is more competition for teachers. Smaller districts outside metropolitan areas may have more monopsony power, which would tend to depress salaries. Third, there may be disutilities for teachers employed in larger districts because of a more impersonal atmosphere, the encumbrances of a large bureaucracy, and student disciplinary problems. Larger districts may have to compensate teachers for these disutilities. For these reasons we expect there to be a direct relationship between enrollment and salaries.

On the other hand, there is reason to expect that enrollment and salaries are not linearly related.[12] Large city school districts may need to compete more intensely with other public services (welfare, transportation, sanitation, etc.) for a piece of the taxpayer's dollar. To account for the possibility of an "urban turnaround", a quadratic

form of the enrollment variable will also be used in the model.

5. Debt Service Per Pupil: The addition of debt service per pupil to the model gives a more comprehensive picture of the true costs of educating a district's pupils.[13] School districts in New York State are limited, for the most part, to using borrowed funds for capital expenditure. We hypothesize that debt service per pupil should have a positive influence on teacher salaries. There are two reasons for this. First, a district with a high debt service per pupil is likely to have undertaken a school building program in the recent past. New buildings result in either higher quality schools or an expanded system and may necessitate the hiring of additional teachers. Second, to the extent that new buildings are financed with borrowed funds rather than current tax dollars, the amount of tax revenue available for teacher salaries is not diminished. Therefore, it is expected that debt service per pupil will have a positive influence on teachers' salaries.

6. Administrative Structure: In another paper, we found that the administrative structure of the educational system exerted a significant influence on whether a school district goes to impasse.[14] Three types of structure were identified: (1) Independent superintendencies (classified by New York State as either independent union free or independent central school districts), which are characterized by an independent superintendent, a budget vote, and a school board of between three and nine members; (2) City school districts, which also have independent superintendents, usually have elected school boards of five to nine members, but are not required to submit proposed budgets for voter ratification;

(3) Supervisory districts, where a state appointed superintendent oversees the operation of several constituent districts, school boards are usually composed of between one and seven elected members, and proposed budgets are subject to voter ratification.[15] We hypothesized with respect to the use of impasse procedures that where the locus of responsibility is closest to the electorate, administrative officials are more reluctant to settle without resorting to the procedures. Consistent with our hypothesis. we found the greatest reliance upon impasse procedures in independent superintendencies, the next highest reliance in city school districts, and the lowest reliance in supervisory districts.[16]

Similarly, we expect that teachers in independent superintendencies and city school districts will win higher salary settlements than teachers in supervisory districts. Given the fact that the administrative structure and impasse variables are correlated, the addition of both types of variables to our model creates a problem of multicollinearity, albeit minor. As is well known, this will tend to reduce the significance of this set of variables, but will not bias their coefficients. To test the effect of administrative structure on salaries, two dummy variables will be set up for independent superintendencies and city school districts. For instance, the variable representing a city school district will equal one if the particular district does indeed have that type of administrative structure, and will take the value of zero otherwise.

7. Impasse Experience: The central purpose of this study is to determine the economic impact, if any, of the impasse procedures. Districts in the sample are classified according to the last step

used in bargaining before a settlement is reached. There are five possible stages: (1) No Impasse. In this situation a district settled the contract without resorting to the impasse procedures of the Taylor Law. (2) Mediation. This is normally the first step in the impasse resolution process. This step also includes the situation where a factfinder is appointed to a case but mediates a settlement. (3) Factfinding. This stage includes those situations where a factfinding report was issued. (4) Legislative Hearing and Superconciliation. This stage includes all those situations where the last step involved either a legislative hearing or superconciliation. (5) Strike. This stage includes all those situations where a strike occurred, whether or not it was the last step. In other words, if the teachers' group went on strike, then went to a legislative hearing, its situation would be classified in the strike category.

In order to determine the effects of going to impasse, four dummy variables will be set up, one each for mediation, factfinding, legislative hearing and superconciliation, and strike. In this way it is possible to determine the dollar amount that each impasse step contributes to negotiated salary levels, compared to settling without impasse. For example, if a district settles at factfinding, then the factfinding variable would equal one; if the district settles at some other stage, the variable would equal zero. This means that if a district goes to both mediation and factfinding, for purposes of this analysis only the factfinding variable would take the value of one. This procedure allows the coefficients of the impasse variables to represent the total dollar amount that the teachers received from going to a particular stage. The incremental amount that teachers

received from going to factfinding, for example, is found by taking the difference of the coefficients for the mediation variable and the factfinding variable.

Our initial hypothesis was that each of the coefficients of the impasse variables would be positive, on the assumption that going to impasse adds to the final salary. In addition, we hypothesized that the further along the procedure a teachers' group goes, the higher would be the salary. Thus, our second hypothesis for the impasse steps was that the coefficients of the impasse variables would increase at each stage. In other words, we expected that the coefficient for the strike variable would be greater than the coefficient for the legislative hearing/superconciliation variable, which would be greater than the coefficient for the factfinding variable, and so on.

Basic Model

In summary, the basic model used in the analysis takes the form:

$$\begin{aligned} \text{SALARY} = {} & b_0 + b_1\,\text{ABPAY} + b_2\,\text{WILPAY} + b_3\,\text{STTRRA} + b_4\,\text{TOTROL} \\ & - b_5\,\text{TTRLSQ} + b_6\,\text{DEBTPP} + b_7\,\text{INDEP} + b_8\,\text{CITY} \\ & + b_9\,\text{MEDIAT} + b_{10}\,\text{FACFIN} + b_{11}\,\text{LEGHSC} + b_{12}\,\text{STRIKE} \end{aligned}$$

SALARY is one of the three salary points as previously defined: BS, BS730, or BS1160. The independent variables are given the following symbols:

ABPAY: ability of a district to pay

WILPAY: willingness of a district to pay

STTRRA: student-teacher ratio in a district

TOTROL: total enrollment in a district

TTRLSQ: total enrollment squared

DEBTPP:	debt service per pupil in a district
INDEP:	district is an independent superintendency
CITY:	district is a city school district
MEDIAT:	mediation is the district's last step in the impasse procedure
FACFIN:	factfinding is the district's last step in the impasse procedure
LEGHSC:	legislative hearing or superconciliation is the district's last step in the impasse procedure
STRIKE:	district went on strike

In addition to the equation presented above, a simple dummy variable to represent whether a district went to impasse was tested in place of the four impasse procedure variables. In other words, one variable called NIMP (No Impasse) was placed in the regression equation in place of the four variables MEDIAT, FACFIN, LEGHSC, and STRIKE. NIMP took the value of one if a district went to impasse, and the value of zero if it did not. This equation will measure the net salary effect of declaring an impasse, regardless of the stage of settlement.

The Addition of Lagged Impasse Variables to the Basic Model

The variables in the above model all take the values of a particular year and do not explicitly capture impacts of prior bargaining experience on current bargaining. Thus, another form of the basic model will also be tested in order to estimate the effect of previous impasse experiences on current salaries. For example, suppose that teachers' group A, in 1968, goes to impasse and winds up with a very high salary settlement, higher than the typical

teachers' group that did not go to impasse. Then in 1969, teachers' group A goes to impasse again, but winds up with the same relative increase in its salary as the teacher groups that did not go to impasse in 1969. The total result, at the end of 1969, however, is that teachers' group A has a higher salary than other teacher groups, not necessarily because it went to impasse in 1969, but because it went to impasse in 1968. The effects of the salary gains from the first round of negotiations carried over to the next round, when it may be said that during the second round teachers' group A really did not gain anything by going to impasse.

The extended model takes into account the possibility of "gains carried over" by using lagged variables for the impasse procedures. This method will show exactly where in the impasse history of a typical teacher's group the gains in salary were actually made. The form for the extended model is the following:

$$\begin{aligned} \text{Salary}_t = {} & b_0 + b_1\ \text{ABPAY}_t + b_2\ \text{WILPAY}_t + b_3\ \text{STTRRA}_t \\ & + b_4\ \text{TOTROL}_t + b_5\ \text{INDEP}_t + b_8\ \text{CITY}_t \\ & + b_9\ \text{MEDIAT}_t + b_{10}\ \text{FACFIN}_t + b_{11}\ \text{LEGHSC}_t \\ & + b_{12}\ \text{STRIKE}_t + b_{13}\ \text{MEDIAT}_{t-1} + b_{14} \\ & \text{FACFIN}_{t-1} + b_{15}\ \text{LEGHSC}_{t-1} + b_{16}\ \text{STRIKE}_{t-1} \\ & + b_{17}\ \text{MEDIAT}_{t-2} \ \ldots \text{ etc.} \end{aligned}$$

Where "t" represents the year under analysis.

For purposes of this anlysis the year chosen for testing the extended form of the model was 1971. The impasse variables therefore include those for the years 1971, 1970, 1969, and 1968.

Results

Results from applying the basic model to 1971 data are shown in Table 3. Corresponding cross sectional results for 1968, 1969, 1970, and 1972 are in Appendix A. The regressions in Table 3 fit the upstate data a bit better than the downstate data and the variance in the two higher salary points in the upstate area is more fully explained than is the variance in base salaries. The range of corrected R^2 values is from 0 percent to 43 percent. The R^2s are significant in four of the six regressions shown in Table 3, suggesting that the model used is appropriate. If an alternative (or opportunity) wage had been used, the adjusted R^2 values would undoubtedly be higher, as is the case with most studes of this type.[17] Nevertheless, of the 30 regressions shown in Table 3 and Appendix Tables 1 through 4, the F-test indicates that 23 are significant at the 5 percent level or better, three are significant at the 10 percent level, and four are insignificant.

As predicted, ability to pay and total enrollment in upstate New York are highly significant and work in the expected direction. Both ability to pay and total enrollment have a strong positive influence on teacher salaries. In addition, total enrollment squared, which captures the special features of larger districts, has the predicted negative relationship with salaries. This is particularly true for the upstate region in all five years.

The other financial variables, willingness to pay and debt service per pupil, do not test as well. Willingness to pay is significant only some of the time, and part of that time it is significant with a negative coefficient, contrary to our expectation.

Table 3

Regression Coefficients for Determinants of Teacher Salaries in New York State (1971)

Independent Variable	Dependent Variable: Base Salary		BS + 30, 7th step		BS + 60, 11th step	
	Upstate	Downstate	Upstate	Downstate	Upstate	Downstate
ABPAY	25.53***	- 10.04**	60.16***	- 18.69	-115.37***	- 7.12
WILPAY	-374.39***	412.75	-578.24***	-4642.9	-854.72***	701.97
STTRRA	- 9.29*	- 33.14***	4.86	- 27.24	36.70**	- 40.58*
TOTRCL	46.68***	28.30***	101.99***	22.51	161.38***	53.28
TTRLSQ	- .85***	- 1.38***	- 1.65***	- 1.15	- 2.53***	- 1.51
DEBTPP	.16	.27*	.66**	.15	.64	.75
INDEP	28.65*	- 47.32	165.03**	109.19	259.27**	107.69
CITY	- 87.61*	- 52.96	-200.2**	-243.2	-293.39***	-548.03
MEDIAT	47.24*	17.83	183.41***	60.93	238.39***	- 79.99
FACFIN	95.85***	50.67	382.82***	148.33	461.74***	116.20
LEGHSC	36.79	- .53	231.53**	209.91*	235.28*	34.06
STRIKE	-166.58*	179.95**	-363.90*	469.33*	-306.65	5.67
CONSTANT	6999.8	8465.9	8949.1	11848.1	9973.7	14405.2
$\bar{R}^2$	.25	.43	.33	.06	.36	0
Std. error	222.69	145.20	485.70	504.45	703.61	723.03

*Significant at $p < .10$
**Significant at $p < .05$
***Significant at $p < .01$

This suggests that either teachers' groups were not able to capta-lize on a district's willingness to pay, or else there is some other factor at work in the construction of that variable. As for debt service per pupil, there are several instances where the variable takes on significant coefficients and when it does it always has the predicted sign. But in several equations it is not significant at all. It may be that in some years debt service is a factor in explaining teacher salaries, while in other years it is negligible. For example, it seems to be relatively important in 1968 and 1970, and unimpoartant in 1969 and 1972.

With regard to the variable representing the student-teacher ratio, again the results are inconsistent. In 1969 for downstate and in 1970 for upstate, the variable is highly significant. This may be a reflection of the changing character of the labor market over that period when more people entered the available pool of teachers. Another explanation is that the student-teacher ratio really does not measure the quality of the teaching position, as was theorized. There may be a better measure of quality that would go further in explaining teacher salaries. On the other hand, if the student-teacher ratio can have either a positive or negative im-pact on salaries -- a possibility suggested earlier in this paper -- then the net impact of the variable could very well be insignificant, which is what occurred in 16 of the 30 regressions.

The administrative structure variables also proved interesting. It was predicted that independent and city-administered districts would pay higher teacher salaries than supervisory districts. The results show that this is generally true of independent districts,

but not true for city districts. The coefficient for the independent-district variable is significant throughout the five years for the upstate region. The City variable coeffieient, however, is almost always insignificant and usually has a negative sign. Thus, even though city districts go to impasse more often than other districts, they do not tend to pay higher salaries.

The difference in the results for the upstate region and the downstate region are substantial. In general, the model tests well through the entire time period for the upstate region, but is very inconsistent in the downstate region. There are a number of explanations that may be offered for this difference. The most obvious is simply that the model is not appropriate for the downstate region because of the "uniqueness"of that area. There may be factors determining teacher salaries in the downstate area that cannot be easily captured in a simple regression model. The models used by other researchers to study teacher salaries are very similar to the model used in this study, so it is not likely that the application of specifications used in other studies would prove very fruitful. A further analysis of what determines salaries in the downstate New York region is needed before a theory can be put forth and a model tested.

As for the impasse variables, the results proved very interesting. Table 4 shows the economic impact of declaring an impasse, regardless of step, for each of the five years for both the upstate and downstate regions. From Table 4 it can be seen that for the salary levels, BS + 30, 7th step and BS + 60, 11th step, teachers in the upstate region received significantly higher salaries by going to impasse in all years, 1968-72, rather than be settling without use

of the impasse procedures.

TABLE 4

Regression Coefficient for the Variable "NIMP"

	Base Salary		BS + 30, 7th step		BS + 60, 11th step	
Year	Upstate	Downstate	Upstate	Downstate	Upstate	Downstate
1968	42.43	-22.85	82.12**	6.60	111.96*	- 65.45
1969	2.49	9.58	252.74***	281.59**	264.24***	402.45***
1970	30.32	2.73	351.71***	258.69***	449.25***	225.88*
1971	57.53**	34.29	244.29***	143.17*	301.08***	- .51
1972	91.39*	-23.01	195.41***	-233.87**	237.90**	-304.97*

*Significant at $p < .10$
**Significant at $p < .05$
***Significant at $p < .01$

The use of the impasse procedures also had a significantly positive effect on base salary in the upstate region in 1971 and 1972, but not in the three earlier years. (The 1968 upstate impasse coefficient on Base Salary barely misses being significant at the 10 percent level.) The net effect of impasse in the upstate area ranges from $58 added to Base Salary in 1971 to $450 added to the BS + 60, 11th Step salary in 1970. The effect of going to impasse varies greatly in the downstate area. It is insignificant in the case of Base Salary in all years and in the case of the two higher salary points in 1968 and, with one exception, 1971; it is significantly positive for the two higher salary points in 1969 and 1970; and, perhaps surprisingly, it is significantly negative in 1972. For example, downstate teachers who went to impasse in 1972 received salaries that were $234 lower at the BS + 30, 7th step level, and

$305 lower at the BS + 60, 11th step level, than they would have received had they settled without impasse.

TABLE 5

Salary Gains Through Going to Impasse, Expressed as a Percentage of Salary

	Base Salary		BS + 30, 7th step		BS + 60, 11th step	
Year	Upstate	Downstate	Upstate	Downstate	Upstate	Downstate
1968	I	I	1.07%	I	1.23%	I
1969	I	I	2.93%	2.90%	2.57%	3.40%
1970	I	I	3.90%	2.50%	4.17%	1.78%
1971	.82%	I	2.55%	1.11%	2.63%	I
1972	1.24%	I	1.97%	-1.96%	2.01%	-2.08%

I = Coefficients were insignificant.

The salary effects of going to impasse, expressed in percentage terms, are presented in Table 5. As can be seen from the table, the percentage effects of impasse usage range from -2 percent to +4 percent. This finding is especially interesting since those studies that have been done to test the effect of collective bargaining on teacher salaries have yielded similar rsults, i.e., almost all studies have found the effect of collective bargaining to be in the range 0 to 5 percent. Thus, an estimate of the combined effect of (a) engaging in collective bargaining and (b) using the impasse procedures is in the range -2 to +9 percent.

We also hypothesized that progressive use of the impasse steps would yield progressively higher salary gains for teachers. However, this does not appear to be true in most cases. For example, Table 6

displays the coefficients for the four impasse variables at the BS + 30, 7th step level in the upstate region.

TABLE 6

Regression Coefficients for Impasse Variables--
Upstate; BS + 30, 7th Step

Impasse Step	1968	1969	1970	1971	1972
MEDIAT	96.91	311.13	329.94	183.41	123.28
FACFIN	I	226.41	377.47	382.82	244.54
LEGHSC	-	230.73	328.37	231.53	291.71
STRIKE	-	-	291.27	-363.90	873.78

I = Coefficients were insignificant
- = No observations

Note that the figures in Table 6 are not additive, but indicate the gains (or losses) associated with the use of a particular impasse step compared to settling without impasse. In every year, there are significant salary gains associated with mediation, whereas factfinding, the legislative hearing, and superconciliation yield progressively higher income gains only in 1972. The strike appears to have been productive for upstate teachers in 1972. By contrast upstate teachers who went on strike in 1971 actually received lower salaries than they would have had they settled without impasse.

Comparable figures for the downstate region are presented in Table 7.

TABLE 7

Regression Coefficients for Impasse Variables--
Downstate; BS + 30, 7th Step

Impasse Step	1968	1969	1970	1971	1972
MEDIAT	I	253.92	317.83	I	-251.32
FACFIN	I	285.27	166.87	I	-230.67
LEGHSC	-	306.02	367.80	209.93	-256.51
STRIKE	-	I	I	469.83	I

I = Coefficients were insignificant
- = No observations

In 1969 the predicted result appears to have occurred, except for the strike stage. In 1972, the effects of going to impasse on salary were actually negative. The results for the highest salary point are generally similar. As in the upstate region, however, base salary does not generally seem to have been affected by the use of the impasse procedures.

The extended model also proved interesting. In this version of the model, the impasse variables were lagged to determine whether the gains from going to impasse in year t were the result of an impasse in year t or of am impasse in year t-n (where n ranges from 1 to 3). The results for the upstate region in 1971 can be seen in Table 8. Adding the lagged impasse variables increased the goodness of fit of the regressions: the $\bar{R}^2$ and F values were improved and the standard errors of the estimates reduced. We also repeat in Table 8 the coefficients of the impasse variables for the upstate

region in 1971 when tested without lagged variables; these results are also contained in Table 3. A comparison of the lagged and unlagged models shows that testing for prior impasse experience washes away much of the significance of current impasse usage. Most of the 1971 salary gains initially attributable to use of the impasse steps in 1971 now seem attributable to use of the impasse steps in 1970 and, to a lesser extent, 1969. On the other hand, even when prior impasse experience is taken in account, it appears that upstate teachers in 1971 gained by settling in factfinding and lost by going on strike.

The results in Table 8 allow one to answer the question: which pattern of impasse usage over the period 1968 to 1971 maximized (or minimized) the salary levels of teachers in 1971? For example, the results suggest that teachers who settled in factfinding in 1968, had a legislative hearing in 1969, and went on strike in both 1970 and 1971 ended up with salary levels that were lower then they would have been had the teachers settled without impasse in all four years. By contrast, teachers who settled in factfinding in all four years ended up with salaries significantly higher than if they had settled without impasse in all four years. (In fact, $1,093 is added to the BS + 60, 11th step, salary level if factfinding is assumed to be the step used in all four years; this is a net gain over settling without impasse of 9.5 percent.) The consistent use of factfinding seems to have been the most profitable route for upstate teachers over the period 1968-71. We hasten to add, however, that such a strategy did not seem to work for downstate teachers, who were incurring net salary losses in factfinding by 1972. The results

presented in Table 8 are specific to a particular year and region and cannot be used to generalize an optimum impasse strategy for other years or areas. Also, since the lagged and unlagged impasse variables are intercorrelated, the inclusion of the entire set of impasse variables in one equation introduces a certain amount of multicolinearity into the model, which diminishes the significance of some of the impasse coefficients. Thus, use of the extended model with lagged variables is a conservative test of the cumulative impact of impasse experience on teacher salaries.

Summary and Discussion of Results

From the results we see that the impasse procedures certainly affected teacher salaries. The theory presented earlier in the paper proposed that teacher groups might gain larger salary increases by utilizing the impasse procedures set up by the Taylor Law. Further, the theory suggested the possibility that the farther along the procedure the teacher groups went, the higher the salary would be. The results show that neither proposition is entirely true.

For the entire five year period, going to impasse generally did result in higher teacher salaries. But this conclusion needs to be tempered by some major qualifications. First, use of the impasse procedures did not, for the most part, affect base salaries in either the upstate or downstate regions of New York. Second, at the two higher salary steps, use of the procedures had very little effect in 1968 and, for the downstate region, in 1971. Third, use of the procedures in the downstate region in 1972 actually resulted in lower teacher salaries than would have been the case if teacher

TABLE 8

Regression Coefficients of Impasse Variables: Extended Model with Lagged Impasse Variables Compared to Basic Model with Current Variables Only; 1971, Upstate

Independent Variable	Dependent Variable					
	Base Salary		BS + 30, 7th Step		BS + 60, 11th Step	
	Lagged	Current Only	Lagged	Current Only	Lagged	Current Only
MEDIAT 68	67.58*	b	I	b	I	b
FACFIN 68	I	b	I	b	I	b
MEDIAT 69	I	b	204.64**	b	I	b
FACFIN 69	I	b	177.59***	b	192.18**	b
LEGHSC 69	I	b	I	b	I	b
MEDIAT 70	79.84**	b	335.89***	b	344.78***	b
FACFIN 70	132.17***	b	444.61***	b	635.90***	b
LEGHSC 70	I	b	304.72**	b	377.11**	b
STRIKE 70	I	b	I	b	I	b
MEDIAT 71	I	97.24*	I	183.41***	I	238.39***
FACFIN 71	58.91*	95.85***	214.34***	382.82***	264.88**	461.79***
LEGHSC 71	I	I	I	231.53**	I	235.28*
STRIKE 71	-157.43*	-166.58*	-396.21*	-363.90*	I	I

b = Variable not included in regression estimate
I = Coefficients were insignificant
* = significant at p .10
** = significant at p .05
*** = significant at p .01

groups had settled without impasse.

The largest gains were made by upstate teachers who used the procedures in 1969, 1970, 1971, and to a lesser extent, 1972. Downstate teachers made large gains through the procedures in 1969 and 1970, but none at all in 1971.

Why were the gains particularly substantial at the two higher salary points in 1969 and 1970? We can only speculate on the reasons. One possibility is that most teacher negotiators are themselves more experienced teachers who are relatively high in the salary schedule. Gains at the higher steps in the schedule translate into higher salaries for themselves. They may be relatively unconcerned about the salaries of new teachers. Moreover, the base salary is probably influenced more by external market pressures than are higher points in the salary schedule and is less subject to procedural and political influences. School districts want to be competitive in their hiring policies and thus are constrained to pay a base salary that is close to what the market dictates. Finally, the small effect on base salaries may be attributable to an arithmetic reason: many districts simply negotiate an increase in base salary, but because of the increment system contained in salary schedules, a given increase in base salary will result in larger dollar amounts going to more senior teachers.

Why were the gains from using the procedures substantial in 1969 and 1970, but either insignificant or inconsistent in 1968, 1971, and 1972? In 1968 the impasse procedures were new - the parties had not had experience using them. Moreover, most of the negotiators on both sides of the table had little negotiating experience. Therefore, it is probably fair to speculate that the

parties did not know how to use the procedures strategically or tactically to gain favorable salary settlements. Our results indicate that, within a year or two, the teacher negotiators had gained enough sophistication to incorporate the use of the procedures into their bargaining strategies and to exploit the procedures for significant gain. This implies that teacher negotiators increased their use of bluffing tactics in the earlier stages of the procedures as time went by and learned to withhold their true positions until reaching factfinding or beyond. By the same token, school boards learned that if they were going to give higher settlements, it was better to do so after impasse than before. In this way, part of the onus of a higher settlement could be removed from their shoulders and placed on the neutrals who entered the dispute.

In addition, the chronic shortage of school teachers ended dramatically in 1971. In 1969 and 1970, the teachers had the advantage of a permissive economic environment. But, by 1971, significant teacher surpluses developed in New York, as they did elsewhere. At the same time, school budgets tightened up all across the state. In the "new" economic environment of 1971-72, school boards became more aggressive in bargaining. District negotiators became more sophisticated and learned to turn the impasse procedures to their own advantage. Our results indicate that by 1972, downstate school boards were extracting more favorable salary settlements from the procedures than from settling on their own. And it may be that by this time, teacher negotiators also learned that if they were going to be "beaten" on salary, it was better to accept the defeat after impasse and give the appearance to their constituents

that they had gone down fighting.

Results from testing the extended model, which included lagged impasse variables, reinforce these interpretations. A good part of the salary gains attributed to using the impasse procedures in 1971 and 1972, especially upstate, is washed away if account is taken of prior impasse experience. The lagged model strengthens our belief that the use of impasse procedures was associated with higher salaries primarily in 1969 and 1970, and that the salary effects of impasse in 1971 and 1972 were "carry-over" effects from the use of the procedures in earlier years. Upstate teachers still gained from the use of factfinding in the later years, but not from the use of other steps - and even the use of factfinding appears to have had a diminishing effect on salaries as time went on.

Finally, what of the strike? We could only test the effect of teacher strikes on salaries in the 1970-72 period because there were no (or too few) observations of strike activity in 1968-69. Even in 1972, less than two percent of the teacher negotiations conducted that year ended with a strike. Perhaps it is not surprising that our results indicate that, in terms of salary, the strike is a highly risky event for both parties. In some cases, teachers apparently made great salary gains by striking (compared to settling by other means), but in other cases they suffered substantial losses. The pattern is clearly idiosyncratic and, we suspect, can only be explained by other factors, possibly political and behavioral, that are not included in our models.

Conclusion

Our findings lead inevitably to the question: should the

system be changed? It certainly appears that the impasse procedures have become an integral part of the negotiating process. In 1968, 24 percent of the districts and teacher groups involved in negotiations went to impasse. By 1972, the proportion had increased to 56 percent. Recent data suggest that the proportion is now above 60 percent.[18] Was this level of impasse usage intended by the New York legislature when it enacted the Taylor Law?

The Taylor Law was designed to encourage collective bargaining between public employees and employers, and to prohibit strikes. Certainly there has been a minimal amount of strike activity, but it can be argued that a major reason for that is the severe penalty imposed by the law on strikers and their unions, rather than the dispute settlement mechanism established by the law. It can be argued that the strike prohibition dimishes the incentives to negotiate. Many industrial relations experts believe that collective negotiations work best only when one side has the right to strike (or to threaten a strike) and the other side has the right to precipitate a strike. Given the Taylor Law penalties, however, the strike is a costly, and, we have seen, risky, alternative. In an overwhelming proportion of teacher negotiations in New York, it is simply unrealistic to expect the threat of a strike to provide the incentive for the parties to negotiate and reach agreement without outside intervention. Granting teachers the right to strike or, alternatively, reducing the penalty for striking might provide greater incentives to bargain and reduce reliance on outsiders. This policy option, however, appears to be politically unacceptable in New York State at this time.

Assuming that the strike prohibition is retained, can the existing impasse procedure be improved? Can it be changed so as to reduce the parties reliance upon it? Our theory and our results both suggest that either side may gain a strategic advantage by going to impasse. Experience has taught the parties that more favorable settlements can be achieved through the impasse steps. So long as this is true in both theory and fact, both sides have an incentive to invoke their use.

If the policy objective is to encourage collective bargaining and discourage the use of third parties, then some thought must be given to modifying the procedures. Measures that make the gains from the procedures less likely, the costs higher, and the risks greater should discourage their use. For example, one modification that would achieve this objective would be to have the parties pay for the use of neutrals, rather than have their services provided free of charge, as is the current practice. The problem with this proposal is that it is difficult to establish a "price" for the use of neutrals that is high enough to discourage their use, but not so high as to create an intolerable financial burden on financially-strapped school districts and teacher unions. Another problem is that any uniform "price" system would create inequities: richer districts and teacher groups would still be able to afford the impasse procedures, but the poorer ones might be cut off from their use. Despite these problems, we believe that PERB ought to be given the authority to experiment with a discretionary fee-charging system. Fees might be higher for larger and wealthier districts and unions, and might also depend on the extent to which the

parties have used the procedures in the past. Parties who have clearly abused the privilege of using the procedures should be made to pay a higher price for their use in the future.

PERB might also be given more administrative discretion to refuse requests for third-party assistance. PERB already has considerable authority to administer the impasse procedures as it sees fit, but normally it feels obligated to supply a neutral whenever called upon by the parties to do so. Perhaps mediation and factfinding might be limited to those cases in which the parties can demonstrate a "severe need." Clearly it is fruitless for neutrals to be assigned to cases where the parties have only had one or two meetings and have barely exchanged their initial proposals. It would be a small matter for PERB to require the parties to submit reports documenting the number of meetings they have held and the number of issues still unresolved, and to assign neutrals only when there is evidence that the parties have made a genuine effort to resolve their differences on their own. This step would certainly increase PERB's administrative burden (and would probably require added staff and lead to appeals by the parties to higher authorities), but in the long run it would serve the objective of promoting collective bargaining and would doubtless reduce the costs borne by the taxpayers of New York of providing virtually unlimited use of third-party neutrals.

Mediators, factfinders, and conciliators might also be given more latitude, on their own initiative, to withhold their services in cases where the parties have failed to engage in serious negotiations. A decision by a neutral to withdraw temporarily from a case would have to be supported by PERB - the parties could not be

allowed, under normal circumstances, to dispute the neutral's decision and appeal to PERB for the assignment of someone else.

All of these proposals are designed to promote more voluntary settlements and less reliance on the impasse procedures. They require only marginal adjustments in the current system. More drastic alternatives, such as granting teachers the right to strike or using compulsory arbitration, might also be considered, but we think the wiser course is to experiment in the ways we suggest before turning to more radical solutions.

A P P E N D I X A

Regression Coefficients for Determinants of Teacher Salaries in New York State

Appendix Tables 1, 2, 3, and 4

Appendix Table 1

Regression Coefficients for Determinants of Teacher Salaries in New York State (1968)

1968

Independent Variable	Dependent Variable: Base Salary		BS + 30, 7th Step		BS + 60, 11th Step	
	Upstate	Downstate	Upstate	Downstate	Upstate	Downstate
ABPAY	16.94**	- 4.19	31.19***	- 16.71	33.50**	- 11.93
WILPAY	22.36**	1.956	32.28**	128.73	33.15*	261.02
STTRRA	.436	- 6.78*	2.90	-10.916	1.416	.6292
TOTROL	27.35***	17.75**	58.78***	10.73	89.69***	3.044
TTRLSQ	- .3873***	- .9114**	- .8049***	- .7424	- 1.243***	- .5061
DEBTPP	.2267	.480*	.3624	1.463**	.4442	2.48**
INDEP	95.23***	65.83**	124.63***	- 18.58	204.34***	- 56.57
CITY	11.35	- 97.91	- 94.88	- 95.54	-102.03	86.98
MEDIAT	57.55*	- 21.85	96.91*	- 51.28	115.68*	- 77.14
FACFIN	17.05	- 23.94	57.89	24.30	105.90	- 54.69
LEGHISC	-	-	-	-	-	-
STRIKE	-	-	-	-	-	-
Constant	5552.4	6350.2	7362.4	8849.2	8743.1	10461.7
$\bar{R}^2$	.16	.05	.20	.01	.21	.01
Std. Error	219.83	162.89	345.36	405.40	500.52	515.22

*significant at $p < .10$
**significant at $p < .05$
***significant at $p < .01$

Appendix Table 2

Regression Coefficients for Determinants of Teacher Salaries in New York State (1969)

1969

Independent Variable	Dependent Variable: Base Salary Upstate	Base Salary Downstate	BS + 30, 7th Step Upstate	BS + 30, 7th Step Downstate	BS + 60, 11th Step Upstate	BS + 60, 11th Step Downstate
ABPAY	13.27**	- 20.7***	44.25***	- 32.55**	94.18***	- .22
WILPAY	- 27.79	-1446.0	- 22.37	793.5	- 2.40	16673.0**
STTRRA	5.89*	17.4***	8.98*	- 25.69***	11.82	- 31.56**
TOTROL	9.21*	5.9	60.3***	3.61	98.11***	- 33.6
TTRLSQ	- .04	- .25	- .71***	.07	- 1.25***	.99
DEBTPP	.22**	.31	.16	.76	.11	.3
INDEP	92.4***	19.2	212.0***	20.03	311.1***	10.16
CITY	34.97	20.5	- 55.6	-119.05	-113.15	- 56.96
MEDIAT	26.27	25.59	311.13***	253.92**	266.70***	387.31**
FACFIN	- 12.21	5.35	226.41***	285.27***	269.62***	393.60***
LEGHSC	23.97	- .19	230.73*	306.02***	205.75	412.76**
STRIKE	-	- 68.78	-	302.58	-	1520.68**
Constant	6144.5	7180.9	8076.5	10049.7	9462.9	11829.2
$\bar{R}^2$	.09	.19	.28	.23	.28	.13
Std. Error	205.52	162.35	428.04	375.54	618.22	625.14

*Significant at $p < .10$
**Significant at $p < .05$
***Significant at $p < .01$

Appendix Table 3

Regression Coefficients for Determinants of Teacher Salaries in New York State (1970)

1970

Independent Variable	Dependent Variable: Base Salary Upstate	Base Salary Downstate	BS + 30, 7th Step Upstate	BS + 30, 7th Step Downstate	BS + 60, 11th Step Upstate	BS + 60, 11th Step Downstate
ABPAY	27.93***	.05	78.39***	1.23	11.08***	14.33
WILPAY	94.41	-1220.8	179.03	-1799.0	2226.4	257.3
STTRRA	9.85**	4.87	28.91***	- 6.32	45.94***	- 16.58
TOTROL	16.66***	22.13**	57.13***	60.47*	94.81***	54.0
TTRLSQ	- .17*	1.08*	- .64***	2.95	- 1.17***	- 1.90
DEBTPP	.48***	.41*	.6***	1.06	.69	.69
INDEP	56.36*	31.79	181.25***	14.42	245.33**	- 53.37
CITY	- 2.6	22.02	- 64.43	-143.67	-148.36	-277.22
MEDIAT	18.90	8.72	329.94***	317.83***	349.07***	323.76*
FACFIN	25.84	- .47	377.47***	166.87*	537.43***	- 16.39
LEGHSC	72.15*	13.76	328.37***	367.80**	454.47***	549.14**
STRIKE	110.13	-138.14	291.27*	41.39	372.68	875.58
Constant	6254.9	7253.0	7887.8	10087.6	9106.2	12483.6
$\bar{R}^2$	.17	.06	.40	.09	.29	.02
Std. Error	207.35	143.35	393.24	424.76	729.23	716.89

*Significant at $p < .10$
**Significant at $p < .05$
***Significant at $p < .01$

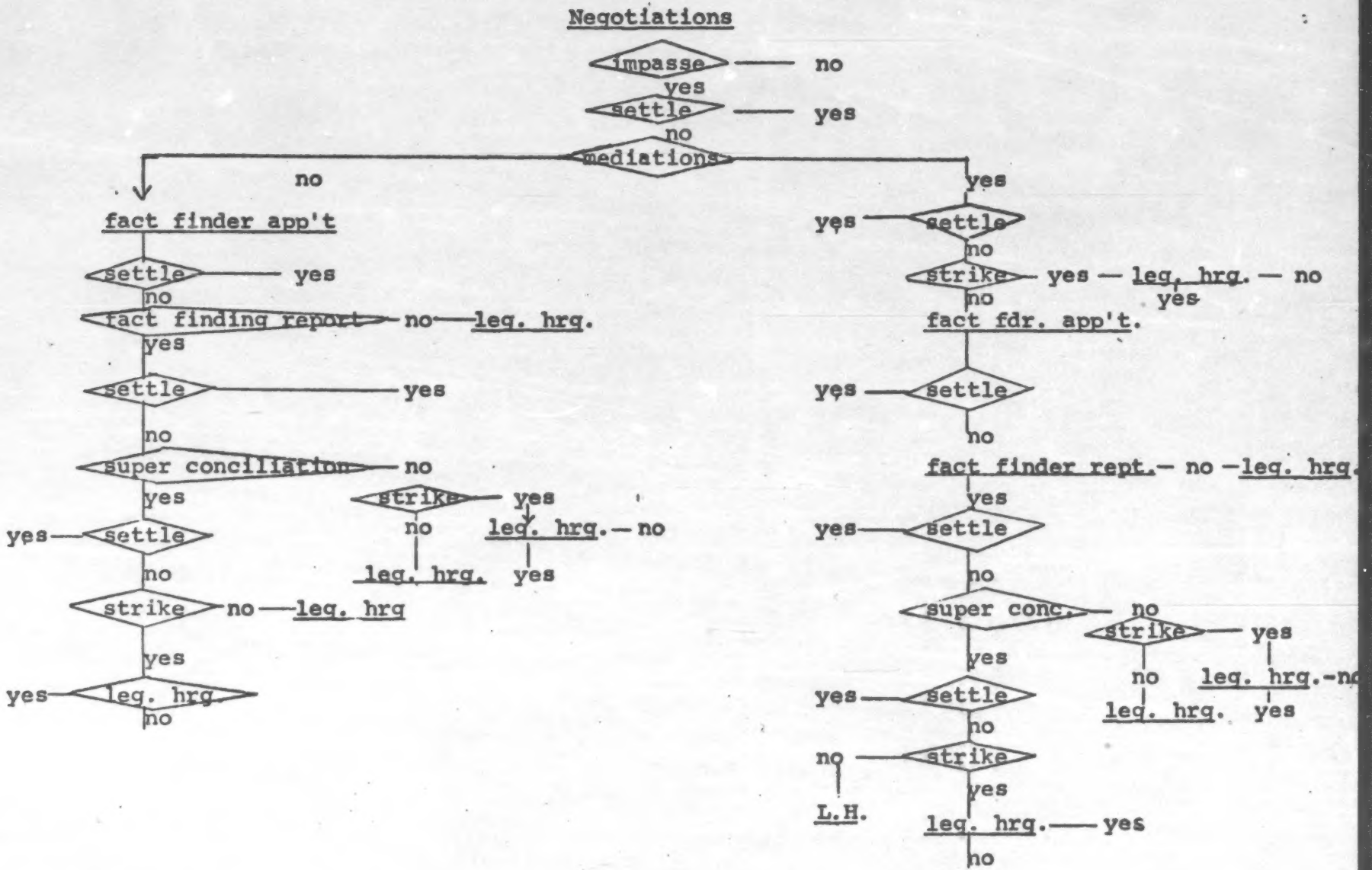
Appendix Table 4

Regression Coefficients for Determinants of Teacher Salaries in New York State (1972)

1972

Independent Variable	Dependent Variable: Base Salary Upstate	Base Salary Downstate	BS + 30, 7th Step Upstate	BS + 30, 7th Step Downstate	BS + 60, 11th Step Upstate	BS + 60, 11th Step Downstate
ABPAY	47.69***	- 10.77	65.75***	10.29	90.64***	- 15.32
WILPAY	-905.78	405.96	-1098.4	10993.7*	-967.32	18890.3*
STTRRA	5.04	- 29.35***	1.88	11.44	- 5.98	- 13.96
TOTROL	47.2***	35.51**	87.02***	- 7.25	149.96***	- 64.7
TTRLSQ	- .55***	- 1.32*	- 1.07***	.16	- 1.93***	3.43
DEBTPP	- .04	- .21	.62	- .36	.91	- 1.35
INDEP	50.36*	- 61.16	194.66**	210.64	342.78**	150.31
CITY	-103.60	- 91.55	- 97.80	-192.18	-186.43	216.99
MEDIAT	50.13	- 46.45	123.28*	-251.32*	147.15	-447.59**
FACFIN	143.47**	- 8.60	244.59**	-230.62**	286.70*	-382.73**
LEGHSC	102.95*	- 2.00	291.71***	-256.51*	369.26**	- 10.44
STRIKE	560.93**	- 55.16	873.78**	- 72.69	1162.23*	416.96
Constant	7061.9	9028.5	9349.7	12006.5	11134.8	15011.8
$\bar{R}^2$	.22	.21	.27	.18	.28	.10
Std. Error	314.42	165.25	545.47	401.26	803.58	674.66

*Significant at $p < .10$
**Significant at $p < .05$
***Significant at $p < .01$



Appendix B
Figure
FLOW CHART OF IMPASSE PROCEDURES UNDER TAYLOR LAW

Footnotes

1. Some of the research includes that done by: Donald D. Frey, "Wage Determination in Public Schools and the Effects of Unionization," in Labor in the Public and Nonprofit Sectors, edited by Daniel S. Hemermesh, Princeton University Press, Princeton, New Jersey, 1975, pp. 183-219; Roger W. Schmenner, "The Determination of Municipal Employee Wages, " The Review of Economics and Statistics, vol. 55, February 1973, pp. 83-90; W. Clayton Hall and Norman E. Carroll, "The Effect of Teachers' Organizations on Salaries and Class Size," Industrial and Labor Relations Review, vol.26, January 1973, pp. 834-41; J. H. Landon and R. N. Baird, "The Effects of Collective Bargaining on Public School Teachers' Salaries--Comment," Industrial and Labor Relations Review, vol. 25, April 1972, pp. 410-417; Robert J. Thornton, "The Effects of Collective Negotiations on Teachers' Salaries," Quarterly Review of Economics and Business, vol. 11, 1971, pp. 37-46; Hirschel Kasper, "The Effects of Collective Bargaining on Public School Teachers' Salaries," Industrial and Labor Relations Review, vol. 24, 1970, pp. 57-71; David B. Lipsky and John E. Drotning, "The Influence of Collective Bargaining on Teachers' Salaries in New York State," Industrial and Labor Relations Review, vol. 27, October 1973, pp. 18-35.

2. James L. Stern, et. al, Final-Offer Arbitration, Lexington, Mass.: D. C. Heath, 1975; Thomas A. Kochan, et. al., An Evaluation of Impasse Procedures for Police and Fire Fighters in New York State, New York State School of Industrial and Labor Relations, Cornell University, 1977; Peter Feuille "Final-Offer Arbitration and Negotiating Incentives," Arbitration Journal, vol. 32, Summer 1977, pp. 203-220; David B. Lipsky and Thomas A. Barocci, "Final-Offer Arbitration and Public Safety Employees: The Massachusetts Experience," in Industrial Relations Research Association, Proceedings of the Thirtieth Annual Winnter Meeting, 1977 (forthcoming).

3. Kochan, et. al., op. cit. David B. Lipsky and John E. Drotning, "The Relation Between Teacher Salaries and the Use of Impasse Procedures Under New York's Taylor Law," Journal of Collective Negotions in the Public Sector, vol. 6, no. 3, 1977, pp. 229-244.

4. Section 200 of the New York Public Employees' Fair Employment Act (The Taylor Law).

5. Section 209-3(a) of the Taylor Law.

6. For a similar approach, see Jan Pen, The Wage Rate Under Collective Bargaining, Cambridge, Mass.: Harvard University Press, 1954, pp. 113-150; see also Oran R. Young, ed., Bargaining: Formal Theories of Negotiations, Urbana, Ill.: University of Illinois Press, 1975.

7. Carl M. Stevens, Strategy and Collective Bargaining Negotiations. New York: McGraw-Hill, 1963.

8. The terminology "target" and "resistance" points is from Richard E. Walton and Robert B. McKersie, A Behavioral Theory of Labor Negotiations, New York: McGraw-Hill, 1965.

9. David B. Ross, "The Arbitration of Public Employee Wage Disputes", Industrial and Labor Relations Review, vol. 23, October 1969, p. 6.

10. Hall and Carroll, op. cit.

11. For a fuller discussion of the effect of enrollment on salaries, see Lipsky and Drotning, "The Influence of Collective Bargaining on Teachers' Salaries in New York State", op. cit., pp. 21-22.

12. Kasper, op. cit.

13. Lipsky and Drotning, "The Influence of Collective Bargaining on Teachers' Salaries in New York State", op. cit., pp. 25-26.

14. Lipsky and Drotning, "The Relation Between Teacher Salaries and the Use of Impasse Procedures", op. cit., pp. 235-239.

15. Ibid., pp. 237-238.

16. Ibid.

17. An alternative wage is the wage of a comparable profession in the same geographical area. By adding an alternative wage to the equation, the general trend of wages in an area is captured. In this manner more of the variance can be explained, i.e., the R^2 values would be higher. Some other studies of the determinants of teacher salaries have used an alternative wage in place of an ability to pay variable. Since the former represents an "income" variable, they are never used together since income and wealth are so highly correlated.

18. PERB, News, May 1976.